1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers
Product name : Potassium hexacyanoferrate(III)
Product Number : 60299
Brand : Sigma
CAS-No. : 13746-66-2

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet
Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA
Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number
Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements
Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS
Contact with acids liberates very toxic gas.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Synonyms : Red prussiate
            Potassium ferricyanide

Formula : C₆FeK₃N₆
Molecular weight : 329.24 g/mol
CAS-No. : 13746-66-2
EC-No. : 237-323-3

Hazardous components

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tripotassium hexacyanoferrate</td>
<td></td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>
4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
7.3 **Specific end use(s)**
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. **EXPOSURE CONTROLS/PERSONAL PROTECTION**

8.1 **Control parameters**

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tripotassium hexacyanoferrate</td>
<td>13746-66-2</td>
<td>C</td>
<td>5.000000 mg/m3</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Upper Respiratory Tract irritation</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Headache</td>
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<td></td>
<td>Nausea</td>
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<td></td>
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<td></td>
<td>Thyroid effects</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Danger of cutaneous absorption varies</td>
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<tr>
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<td>C</td>
<td>5.000000</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
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<td>mg/m3</td>
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<td>Upper Respiratory Tract irritation</td>
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<td>Thyroid effects</td>
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<td>Danger of cutaneous absorption varies</td>
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<td>TWA</td>
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<td>USA. ACGIH Threshold Limit Values (TLV)</td>
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<td>mg/m3</td>
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<td></td>
<td>Upper Respiratory Tract irritation</td>
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<td></td>
<td>Skin irritation</td>
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<td></td>
<td>varies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>4.700000 ppm 5.000000 mg/m3</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>ppm</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>1.000000 mg/m3</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>mg/m3</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>TWA</td>
<td>5 mg/m3</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
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<tr>
<td></td>
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<tr>
<td></td>
<td>CAS number varies with compound Skin designation</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>5 mg/m3</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
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<tr>
<td></td>
<td>TWA</td>
<td>1 mg/m3</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Upper Respiratory Tract irritation</td>
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<td></td>
<td>Skin irritation</td>
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<td>varies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>4.7 ppm 5 mg/m3</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>ppm</td>
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<tr>
<td></td>
<td>10 minute ceiling value</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
### USA. NIOSH Recommended Exposure Limits

<table>
<thead>
<tr>
<th></th>
<th>TWA</th>
<th>1 mg/m3</th>
<th>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 8.2 Exposure controls

**Appropriate engineering controls**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**Personal protective equipment**

**Eye/face protection**
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

- Full contact
  - Material: Nitrile rubber
  - Minimum layer thickness: 0.11 mm
  - Break through time: 480 min
  - Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

- Splash contact
  - Material: Nitrile rubber
  - Minimum layer thickness: 0.11 mm
  - Break through time: 480 min
  - Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

*data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374*

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**Body Protection**
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific workplace. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Control of environmental exposure**
Do not let product enter drains.

---

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

**9.1 Information on basic physical and chemical properties**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Appearance</td>
<td>Form: crystalline</td>
<td>Colour: red</td>
</tr>
<tr>
<td>b) Odour</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>c) Odour Threshold</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>d) pH</td>
<td>6.0 - 9 at 329 g/l at 25 °C (77 °F)</td>
<td></td>
</tr>
<tr>
<td>e) Melting point/freezing</td>
<td>No data available</td>
<td></td>
</tr>
</tbody>
</table>
f) Initial boiling point and boiling range  No data available

g) Flash point  Not applicable

h) Evaporation rate  No data available

i) Flammability (solid, gas)  No data available

j) Upper/lower flammability or explosive limits  No data available

k) Vapour pressure  No data available

l) Vapour density  No data available

m) Relative density  1.890 g/cm³

n) Water solubility  329 g/l at 20 °C (68 °F) - completely soluble

o) Partition coefficient: n-octanol/water  No data available

p) Auto-ignition temperature  No data available

q) Decomposition temperature  No data available

r) Viscosity  No data available

s) Explosive properties  No data available

t) Oxidizing properties  No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
Contact with acids liberates very toxic gas.

10.2 Chemical stability
May discolor on exposure to light. Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong acids, Strong oxidizing agents, Ammonia, hydrochloric acid, Cyanides

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx), Potassium oxides, Iron oxides
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Mouse - 2,970 mg/kg

Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information

RTECS: LJ8225000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
Toxicity to fish LC50 - Oncorhynchus mykiss (rainbow trout) - 869 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates EC50 - Daphnia magna (Water flea) - 549 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available
13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

**Product**
Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging**
Dispose of as unused product.

14. TRANSPORT INFORMATION

**DOT (US)**
UN number: 3077  Class: 9  Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Tripotassium hexacyanoferrate)
Reportable Quantity (RQ):

Poison Inhalation Hazard: No

**IMDG**
Not dangerous goods

**IATA**
Not dangerous goods

15. REGULATORY INFORMATION

**SARA 302 Components**
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**
No SARA Hazards

**Massachusetts Right To Know Components**
No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tripotassium hexacyanoferrate</td>
<td>13746-66-2</td>
<td>1989-08-11</td>
</tr>
</tbody>
</table>

**New Jersey Right To Know Components**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tripotassium hexacyanoferrate</td>
<td>13746-66-2</td>
<td>1989-08-11</td>
</tr>
</tbody>
</table>

**California Prop. 65 Components**

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tripotassium hexacyanoferrate</td>
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</table>

16. OTHER INFORMATION

**HMIS Rating**

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health hazard:</td>
<td>1</td>
</tr>
<tr>
<td>Chronic Health Hazard:</td>
<td>0</td>
</tr>
<tr>
<td>Flammability:</td>
<td>0</td>
</tr>
<tr>
<td>Physical Hazard</td>
<td>0</td>
</tr>
</tbody>
</table>
NFPA Rating
Health hazard: 0
Fire Hazard: 0
Reactivity Hazard: 0

Further information
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Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956
Version: 3.11 Revision Date: 09/23/2016 Print Date: 10/07/2016